REMARKS

Initially, in the Office Action dated February 18, 2004, the Examiner has objected to claim 11 under 37 C.F.R. §1.75(c). Claim 13 has been objected to because of informalities. Claims 29-31 have been rejected under 35 U.S.C. §112, second paragraph. Claims 34-39 have been rejected under 35 U.S.C. §112, second paragraph. Claims 1-5, 8-10 and 12-39 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,319,359 (Wolf). Claims 6 and 7 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Wolf et al. in view of U.S. Patent No. 5,070,254 (Summers).

By the present response, Applicant has canceled claims 34-39 without disclaimer. Applicant has amended claims 1, 10, 11, 13, 22-24, 28, 29, 32 to further clarify the invention. Claims 1-33 remain pending in the present application.

Priority

The Examiner acknowledges Applicant's claim for priority but notes that Applicant has not filed a certified copy of the United Kingdom application. Applicant submits that this is not required for a national stage filing of a PCT application, such as this.

Further, the Examiner asserts that Applicant has not complied with the requirements of 37 C.F.R. §1.63(c) requiring an Oath, Declaration or application data sheet acknowledging the filing of the foreign application. Applicant is submitting concurrently with this response a supplemental Declaration and Power of Attorney meeting this requirement.

Drawing Objections

Figs. 1(a) - 1(c) and 9 have been objected to, as the Examiner requires that a legend such as "Prior Art" be included. Applicant has amended these figures to further clarify the invention and respectfully request that these objections be withdrawn.

Figs. 5(a) - 5(d), 6(a) - 6(f), 9 and 10 have been objected to since the axes do not have labels. Applicants submit that Figs. 5(b) and 5(c) have appropriate labels "dB" and "kHz" on the y-axis and x-axis, respectively. Applicants have amended the figures without labels to further clarify the invention and respectfully request that these objections be withdrawn.

Claim Objections

Claim 11 has been objected to under 37 C.F.R. §1.75(c) as being in improper form. Applicants have amended this claim to clarify the invention and respectfully request that this objection be withdrawn. Claim 13 has been objected to because of informalities. Applicants have amended this claim to further clarify the invention and respectfully request that this objection be withdrawn.

35 U.S.C. §112 Rejections

Claims 29-31 have been rejected under 35 U.S.C. §112, second paragraph. Applicant has amended these claims to further clarify the invention and respectfully request that these rejections be withdrawn.

Claims 34-39 have been rejected under 35 U.S.C. §112, second paragraph. Applicant has canceled these claims, therefore, rendering these rejections moot.

35 U.S.C. §102 Rejections

Claims 1-5, 8-10 and 12-39 have been rejected under 35 U.S.C. §102(b) as being anticipated by Wolf. Applicant respectfully traverses these rejections.

Wolf discloses a radio transmitter energy recovery system where an AM transmitter includes an RF signal generator and a switching type RF signal amplifier. The RF amplifier output depends upon the energizing voltage applied thereacross, so it acts as a modulator. The energizing voltage is produced by a high power audio amplifier, which includes a pulse width modulator driving a high power audio switch. The switch terminals are coupled in series with an audio frequency filter, energizing terminals of the RF amplifier and a source of direct energizing potential, for varying the voltage across the RF amplifier at an audio rate in response to the duty cycle of the width modulated pulses for audio modulating the RF carrier. In order to reduce modulation distortion at low duty cycles resulting from the finite turn on and turn off time of the audio switch, an offset voltage generator is coupled to the filter by a diode.

Regarding claims 1, 10, 28 and 32, Applicant submits that Wolf does not disclose or suggest the limitations in the combination of each of these claims of, inter alia, defining cost functions representing the deviation of a respective one of the cost parameters from the associated desired system criterion, or defining the amplitude of the pulse function over a range of frequencies in dependence on the cost functions and the distortion to be compensated, defining the amplitude of a pulse function over a range of frequencies in dependence on desired cost parameters for a first

component, defining cost parameters for a second component on the basis of the distortion to be compensated for the second component, defining the amplitude of the pulse function over a range of frequencies in dependence upon distortion functions of the second component and the pulse function defined for the first component, or a dual mode communication device that performs these functions. The Examiner asserts that Wolf discloses the limitations in the claims of the present application at Fig. 1 and col. 3, lines 3-8 and 16-22. However, these portions of Wolf merely disclose a diagram of a prior art and generator or transmitter, that radio frequency drive source 13 may include one or more driver amplifiers for increasing the carrier signal power output to the radio frequency power amplifier and may also contain phase and amplitude pre-distortion circuits for compensating for the distortion in later stages, and that an RF signal passing through a power amplifier is modulated by reconstructed audio applied to a terminal, and that amplifier terminal is coupled to ground by way of a switching audio power amplifier that includes a pulse duration modulator, a power audio switch or switch mode amplifier, and a low pass filter. This is not defining cost functions representing the deviation of a respective one of the cost parameters from associated desired system criterion or defining the amplitude of the pulse function over a range of frequency in dependence on cost functions and the distortion to be compensated for, as recited in the claims of the present application. The limitations in the claims of the present application relate to enabling a pulse function to be determined in terms of the relationship between amplitude and frequency in dependence upon cost functions and distortion to be

compensated for. This gives the freedom to select new pulse shapes that allow many cost parameters (cost functions and distortions) to be balanced against each other. In contrast, Wolf merely discloses an AM transmitter with pre-distortion circuits in the RF drive source 13. This is conventional pre-distortion as defined in the background section of the present application, last paragraph of page 1. The transmitter disclosed in Wolf has a fixed cost function and a fixed pulse shape. Wolf does not disclose or suggest defining cost functions representing the deviation of a respective one of the cost parameters from an associated desired system criteria or defining the amplitude of the pulse function over a range of frequencies in dependence on the cost functions and the distortion to be compensated for. Moreover, Wolf does not disclose or suggest a dual mode communication device as recited in the limitations the claims of the present application.

Regarding claims 2-5, 8, 9, 12-27, 29-31 and 33, Applicant submits that these claims are dependent on one of independent claims 1, 10, 28 and 32 and, therefore, are patentable at least for the same reasons noted regarding these independent claims. For example, Applicant submits that Wolf does not disclose or suggest where the defining the distortion to be compensated for includes defining first and second distortions, or where the first and second distortions relate to different component tolerances.

Accordingly, Applicant submits that Wolf does not disclose or suggest the limitations in the combination of each of claims 1-5, 8-10 and 12-39 of the present

application. Applicant respectfully requests that these rejections be withdrawn and that these claims be allowed.

35 U.S.C. §103 Rejections

Claims 6 and 7 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Wolf in view of Summers. Applicant respectfully traverses these rejections.

Summers discloses direct conversion of a succession of numbers produced from a digital oscillator into analog form, followed by integration by an integrator to produce a distorted analog waveform which when limited by a limiter produces an output pulse waveform with an inaccurate mark/space ratio. A subtraction circuit subtracts each number produced by the digital pulse generated from the previous number to produce a series of new numbers, which represent a pre-distorted waveform. When these new numbers are converted into analog form, the integration of the resulting waveform by the integrator produces an analog waveform with clearly defined zero crossings. The output pulse waveform is thereby given a relatively constant mark/space ratio.

Applicant submits that claims 6 and 7 are dependent on independent claim 1 and, therefore, are patentable at least for the same reasons noted regarding this independent claim. Applicant submits that Summers does not overcome the substantial defects noted previously regarding Wolf. For example, Applicant submits that none of the cited references disclose or suggest where the compensation is for

distortion by a linear component of the transmitter or where the compensation is for distortion by a reconstruction filter.

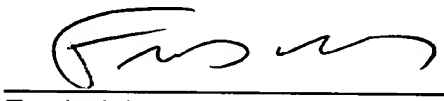
Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of claims 6 and 7 of the present application. Applicant respectfully requests that these rejections be withdrawn and that these claims be allowed.

In view of the foregoing amendments and remarks, Applicant submits that claims 1-33 are now in condition for allowance. Accordingly, early allowance of such claims is respectfully requested.

To the extent necessary, Applicant petitions for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (referencing attorney docket no. 367.38796X00).

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP



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(703) 312-6600

Attachment: Annotated Sheet Showing Changes
Supplemental Declaration

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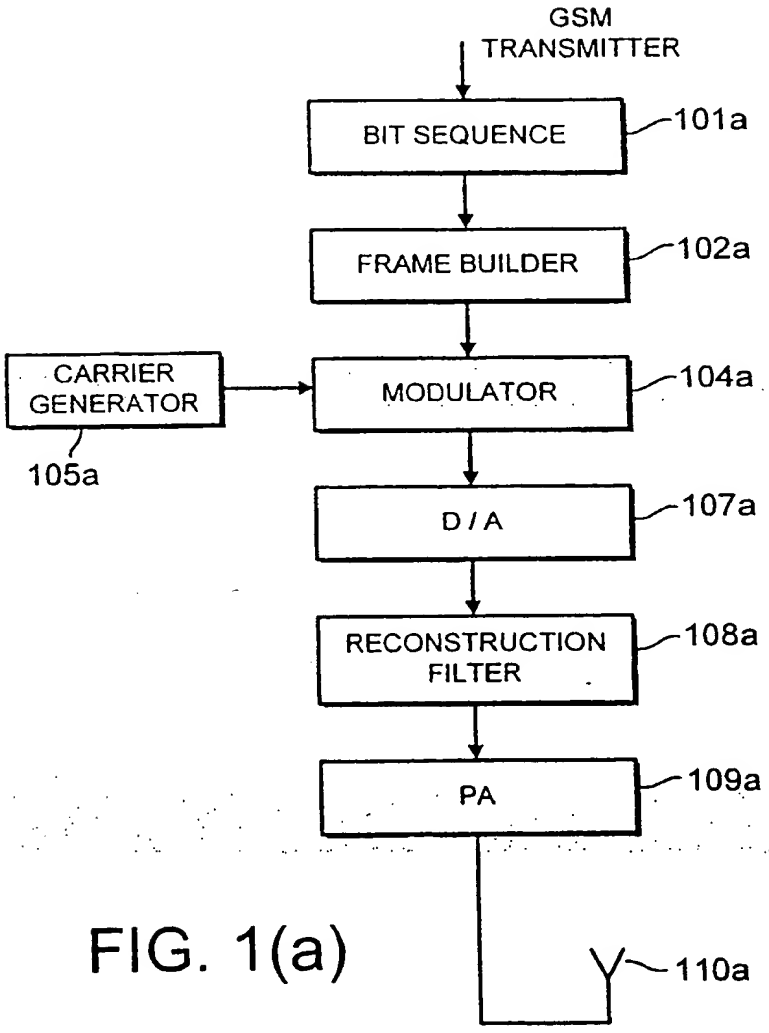

FIG. 1(a)

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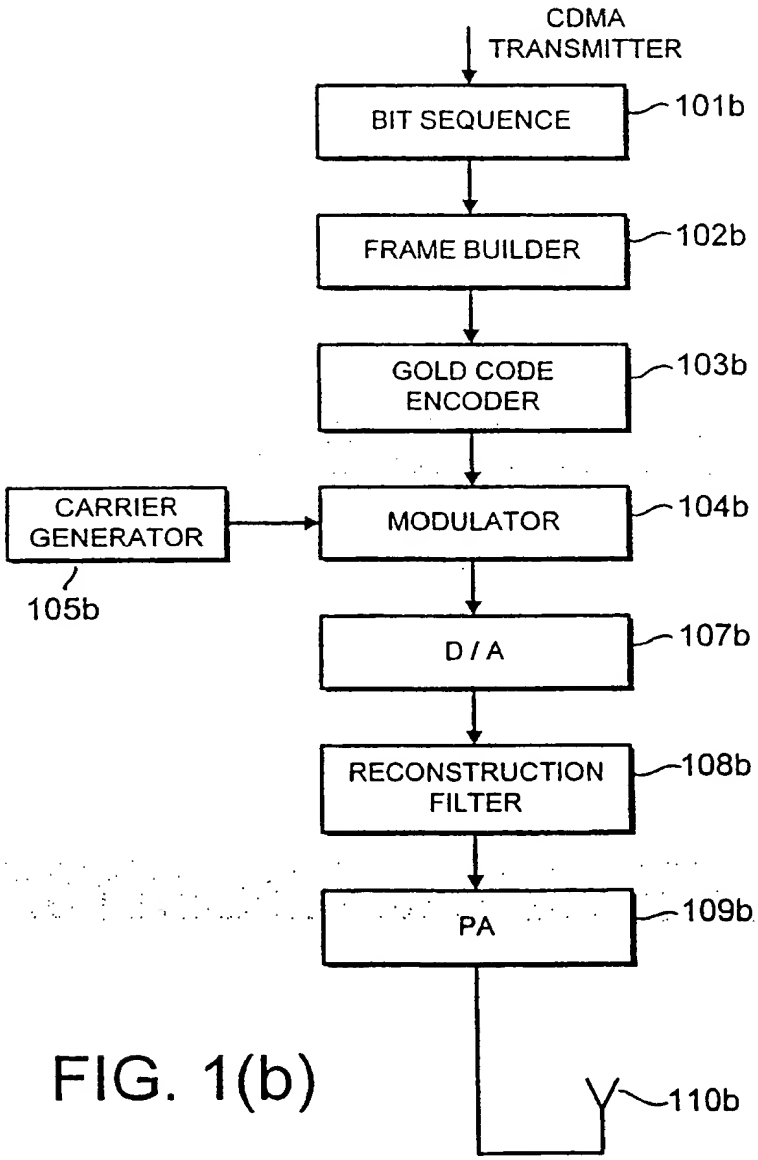

FIG. 1(b)

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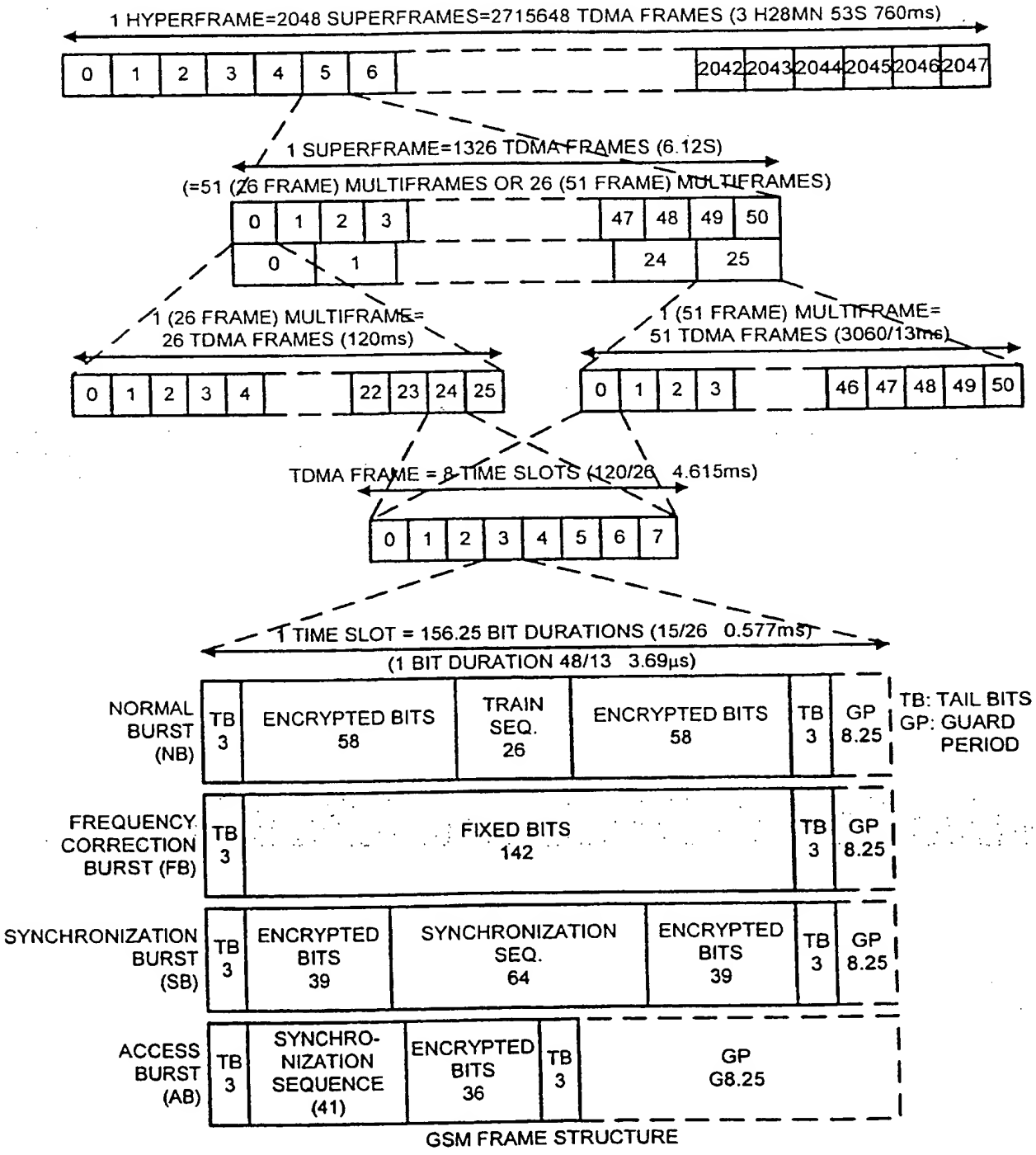

PRIOR ART

FIG. 1(c)

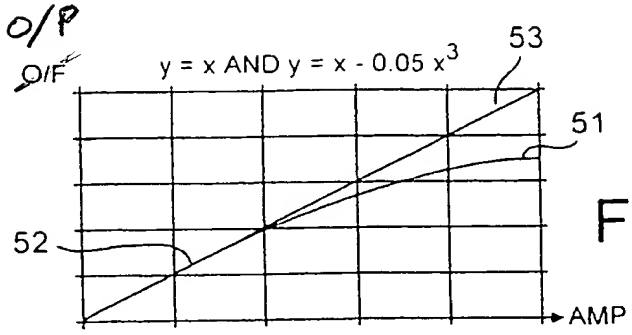

FIG. 5(a)

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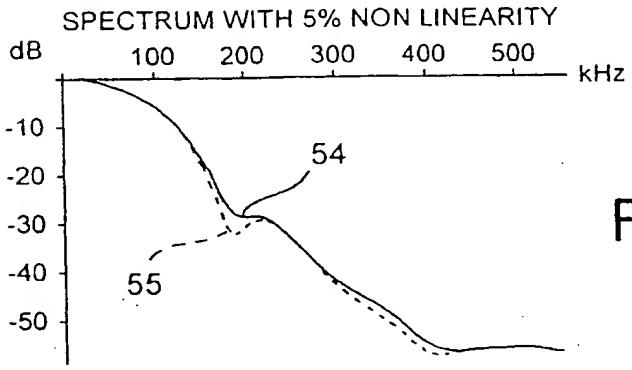

FIG. 5(b)

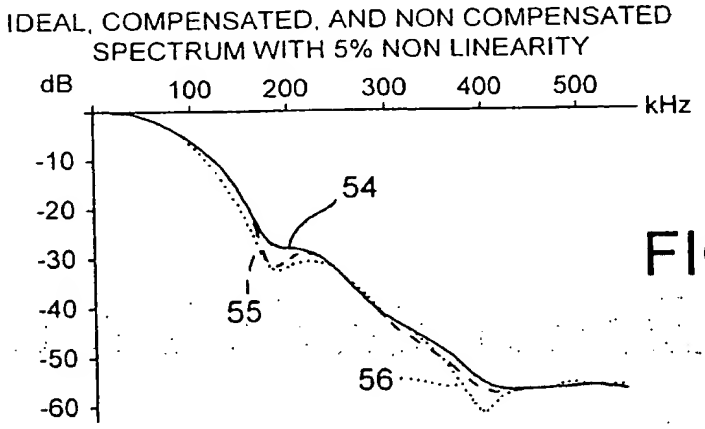

FIG. 5(c)

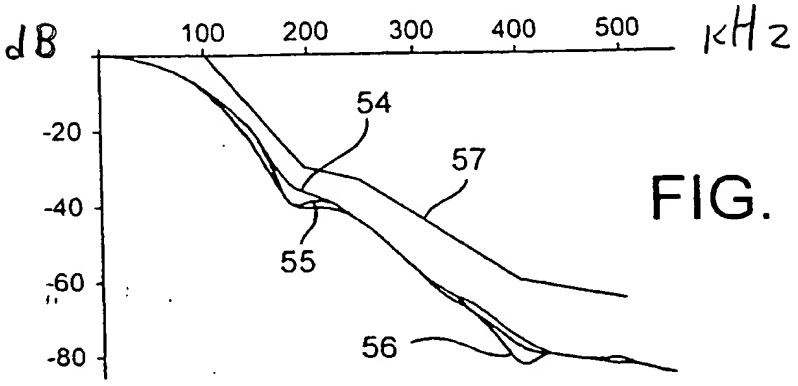

FIG. 5(d)

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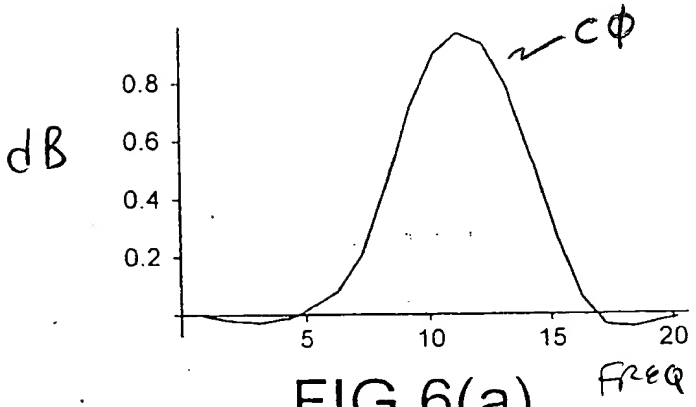

FIG.6(a)

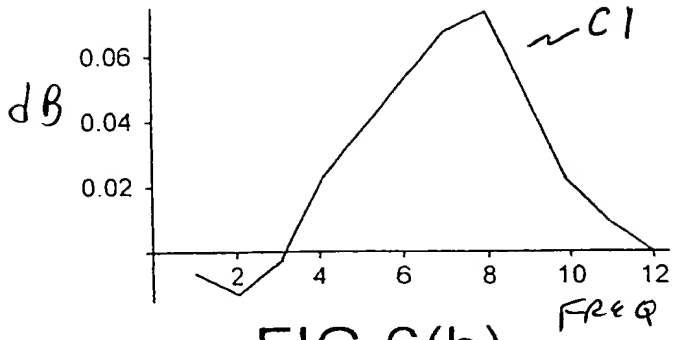

FIG.6(b)

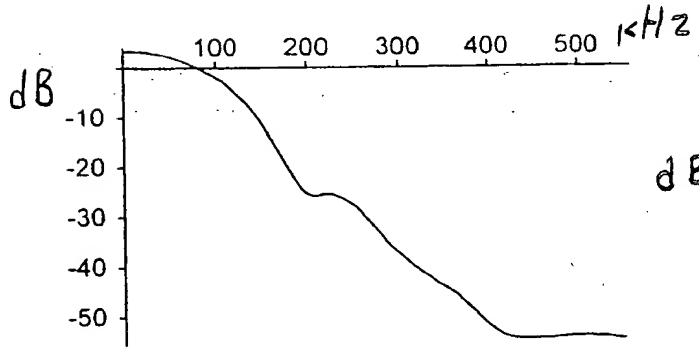

FIG.6(c)

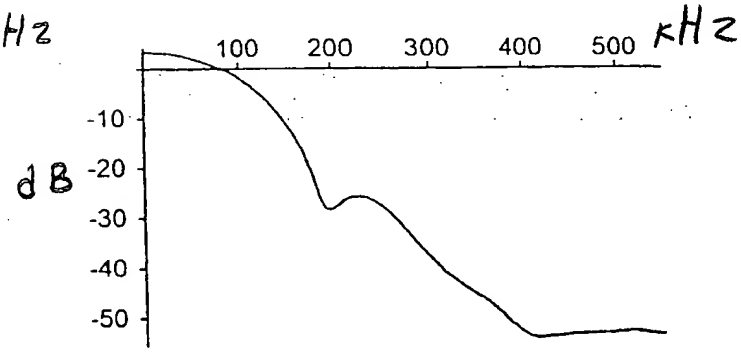

FIG.6(d)

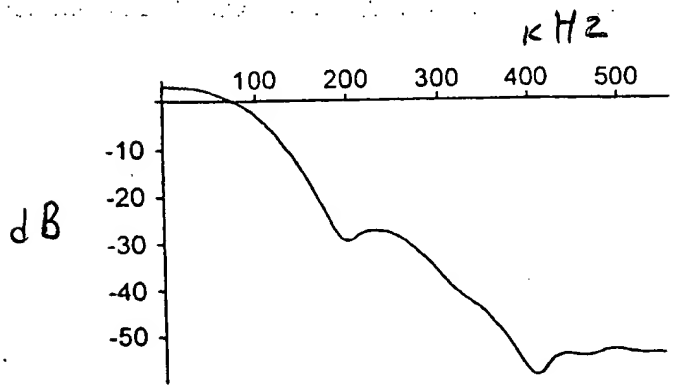

FIG.6(e)

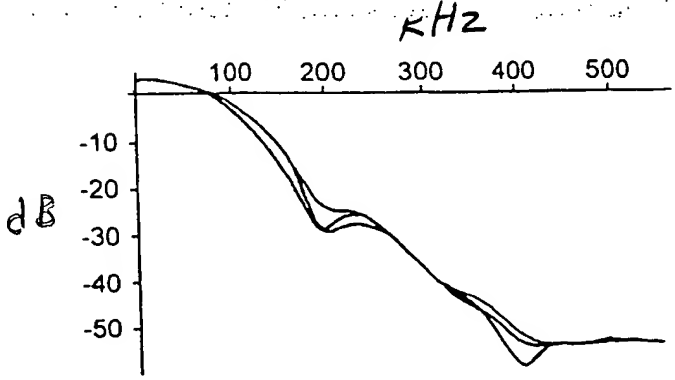

FIG.6(f)

ANNOTATED MARKED-UP DRAWING

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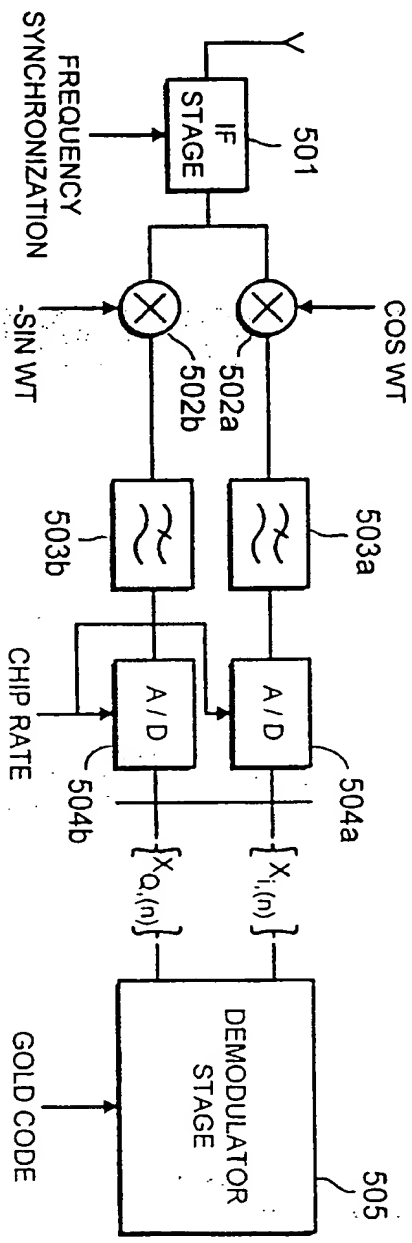

FIG. 9

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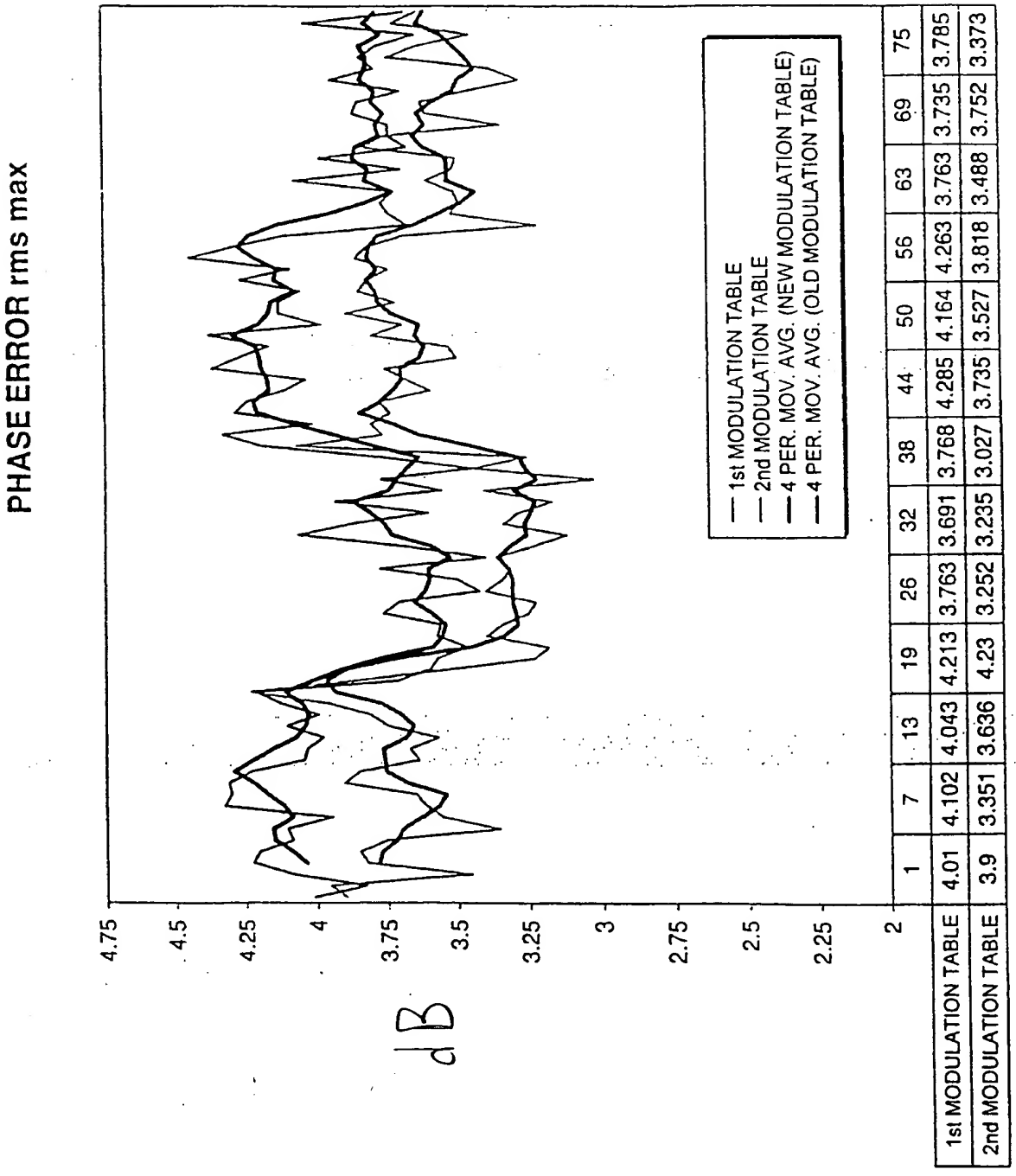
FIG.10(b)



	1	7	13	19	26	32	38	44	50	56	63	69	75
1st MODULATION TABLE	4.01	4.102	4.043	4.213	3.763	3.691	3.768	4.285	4.164	4.263	3.763	3.735	3.785
2nd MODULATION TABLE	3.9	3.351	3.636	4.23	3.252	3.235	3.027	3.735	3.527	3.818	3.488	3.752	3.373

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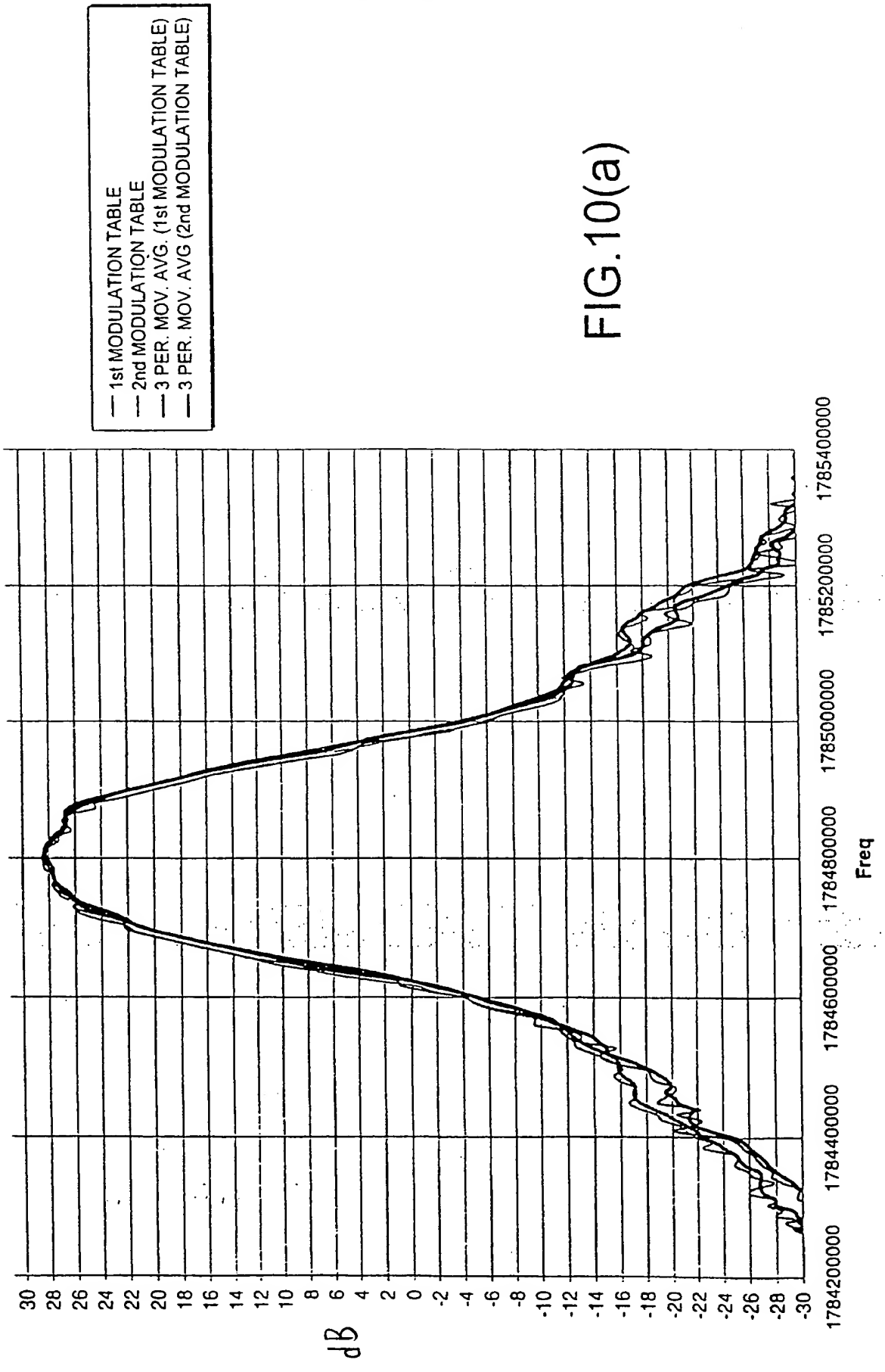

FIG.10(a)